



CAGRD

CENTRAL ARIZONA GROUNDWATER
REPLENISHMENT DISTRICT

A Division of Central Arizona Project

CAGRD 2015 Plan of Operation: Review of Submitted Draft

**Phoenix AMA Groundwater Users Advisory Council
April 28, 2015**

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Plan Overview

Plan Purpose

- **To provide sufficient information to allow the ADWR Director to determine if the CAGRD's planned activities over the next twenty years are consistent with the management goals of each AMA within which CAGRD member lands or member service areas are or may be located**
- **Director's determination is made on an AMA-by-AMA basis**

Plan Overview

Chapter One: Background

- **Historical Background and Creation of CAGRD**
- **CAGRD's Water Resource Management Role**
- **CAGRD Membership Types**
- **Chronology of Plans of Operation**
- **Stakeholder Working Group Process**

Plan Overview

Chapter Two: Historic Operations

- Purpose is to describe CAGRD's replenishment obligation and extent to which that obligation has been met over the past ten years

Chapter Three: Obligation and Enrollment

- Purpose is to estimate CAGRD's projected 20-year and 100-year replenishment obligation

Plan Overview

Chapter Four: Water Supplies

- **Purpose is to describe water supplies CAGRD “plans to use” over next 20 years and water supplies “potentially available” over subsequent 80 years**
- **Note:**
 - **“Plans to use” and “potentially available” have specific statutory meaning**
 - **CAGRD is not assuming that it will acquire or develop any specific types or volumes of water supplies**

Plan Overview

Chapter Five: Replenishment Reserve

- **Purpose is to describe CAGRD activities over past 10 years toward meeting Replenishment Reserve requirements and planned activities over next 10 years**

Chapter Six: Storage Facilities Planned for Use

- **Purpose is to demonstrate that CAGRD has available or planned capacity for replenishment purposes over the next 20 years**

Plan Overview

Chapter Seven: Funding Mechanisms

- **Purpose is to demonstrate that CAGRD has the financial capability to meet its replenishment obligations over the next 20 years**

Chapter 3: Obligation and Enrollment

Planning Considerations

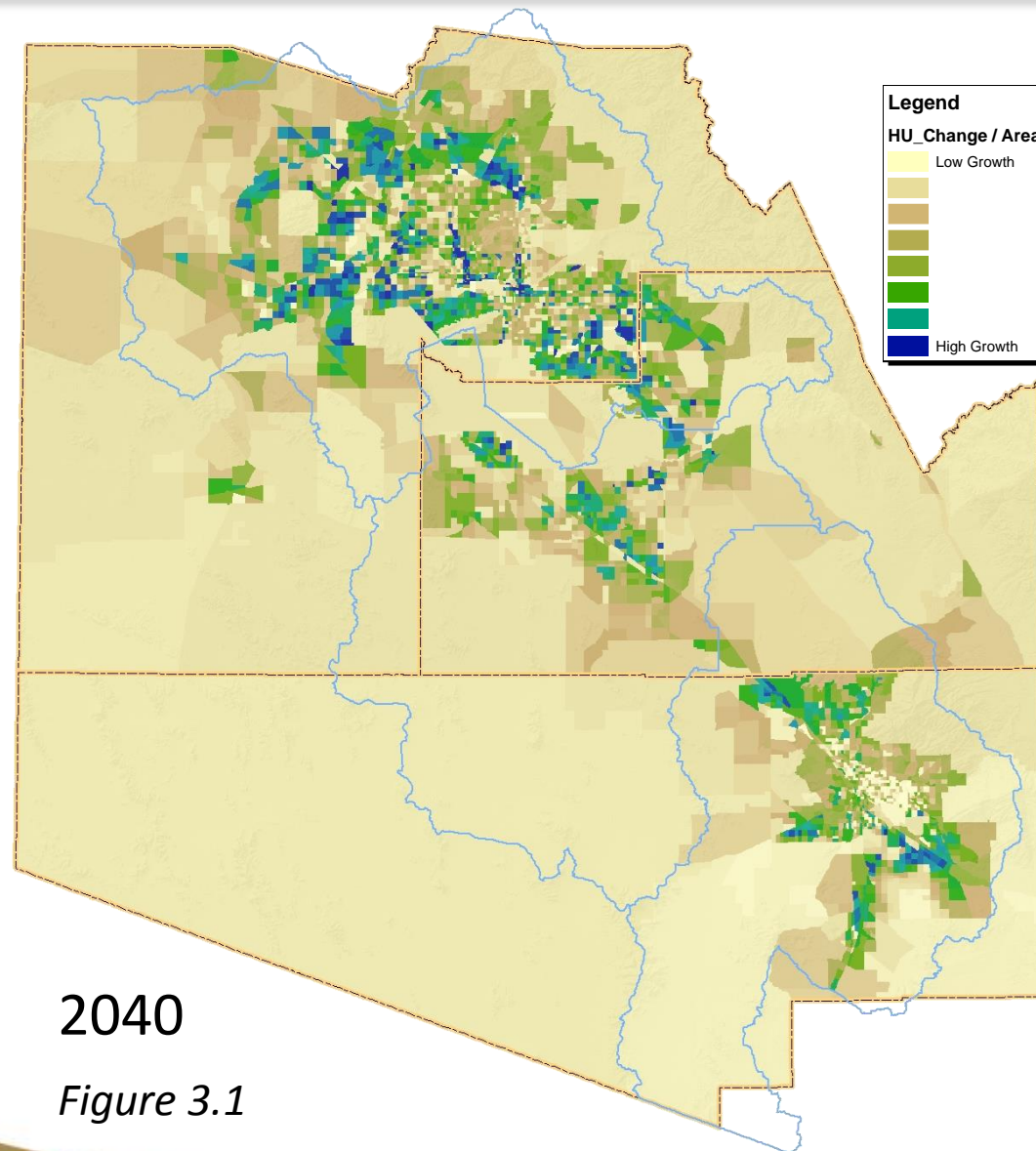
➤ CAGRD Plan Requirement

- Create a forecast that satisfies an ADWR “reasonableness” test
 - Conform to specific statutory requirements
 - Use “conservative” (middle-high) assumptions

➤ Planning Approach

- Develop models that can be used to generate and evaluate a wide range of scenarios
 - Ongoing support for CAGRD
 - Support for other CAP planning & analytical needs

Projected Growth



2040

Figure 3.1

New Municipal Demand

- New demand is tied to housing unit projections for each water provider
- Those housing units are multiplied by provider-specific demand factors
- Many additional calculation steps are required for Member Land providers
 - Distribution of housing units by Plan Period
 - Groundwater Allowance use
 - Member Land-level demands

New Housing Units, Total Annual

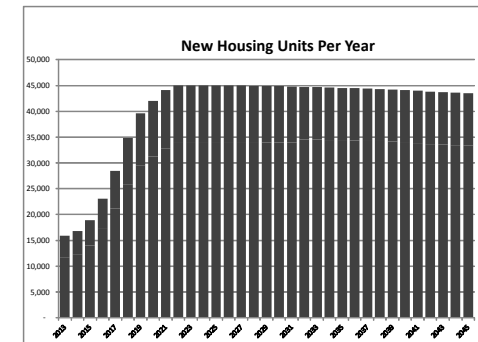


Figure Not In Plan



New Housing Units, ML Providers

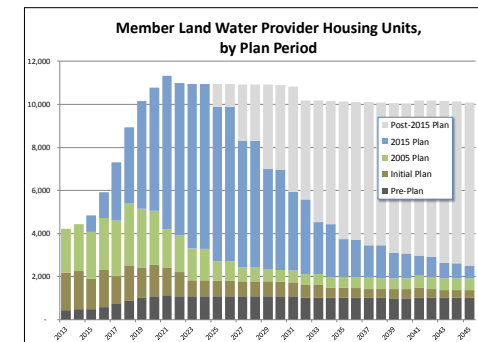


Figure 3.4



Supply Utilization

- **For each water provider, projected demand is met based on the unique portfolio of supplies legally and physically available to that provider**
 - **Effluent**
 - **CAP (P3, M&I, Indian Lease, NIA)**
 - **Surface Water (SRP, RWCD)**
 - **Long-Term Storage Credits (CAP & Effluent)**
 - **Exempt Groundwater (Remediation, Pre-95)**
 - **Groundwater Allowance**
 - **Excess Groundwater**

Total Municipal Supply Utilization

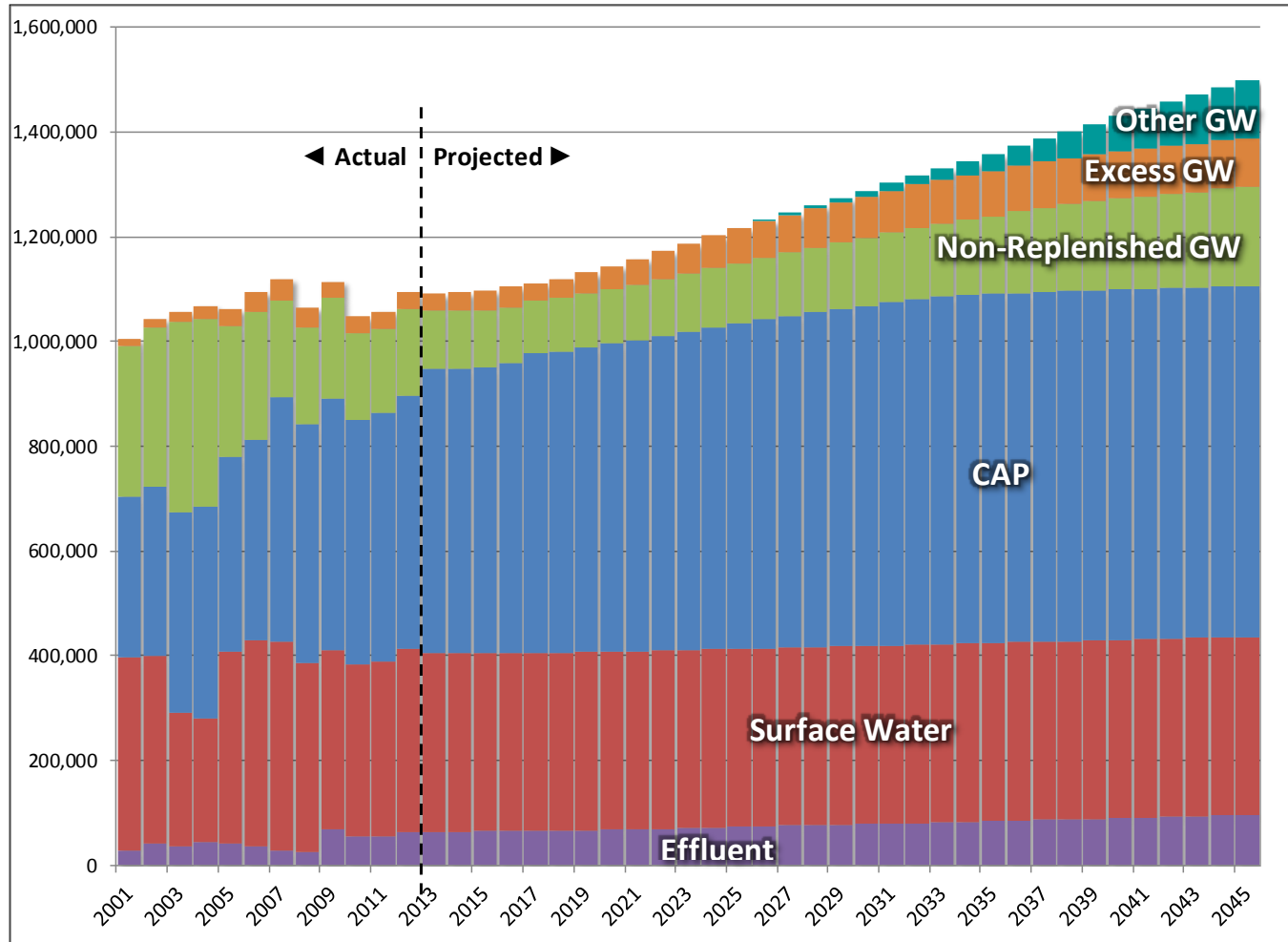


Figure 3.7

Replenishment Obligation

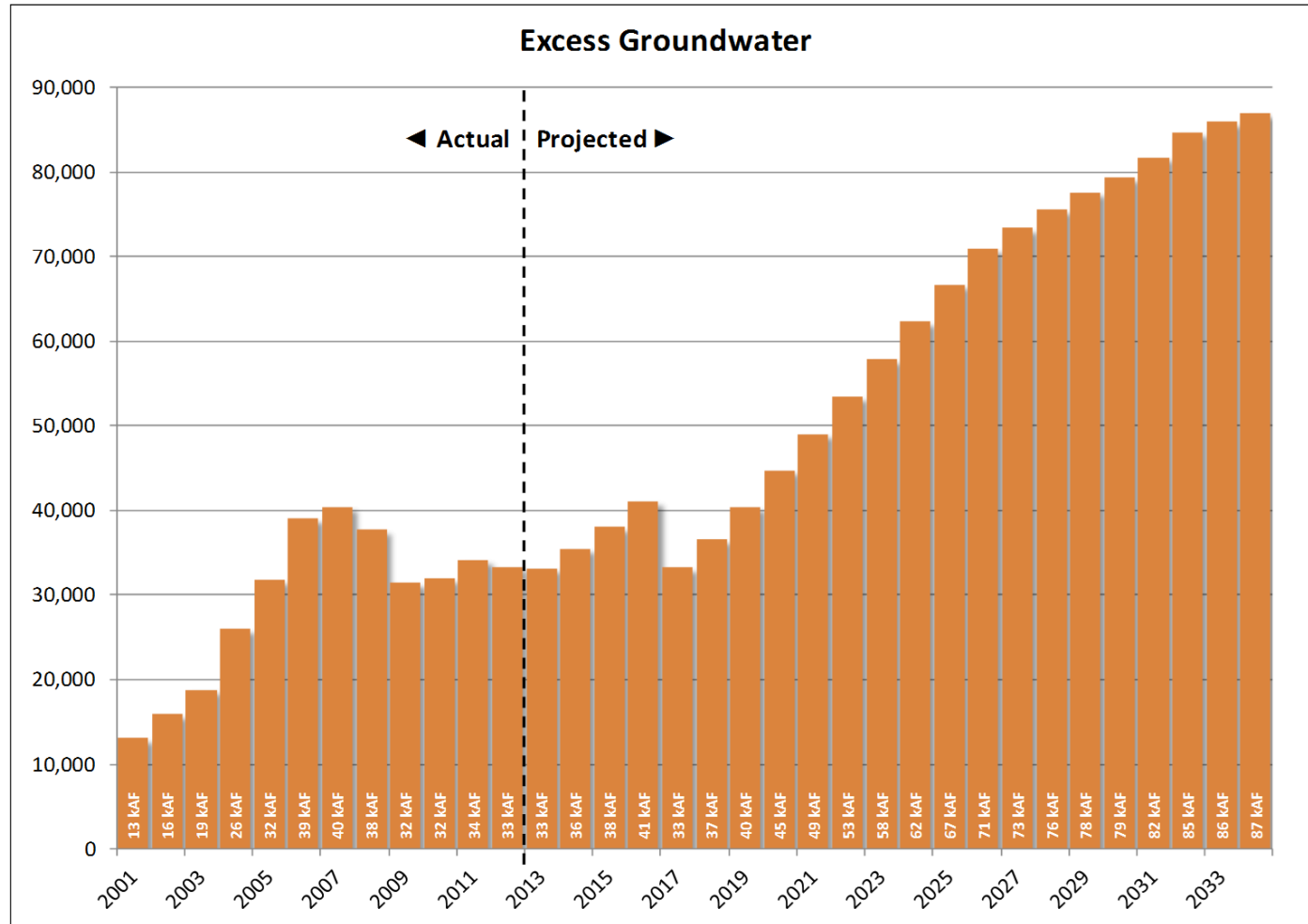


Figure 3.8

Replenishment Obligation

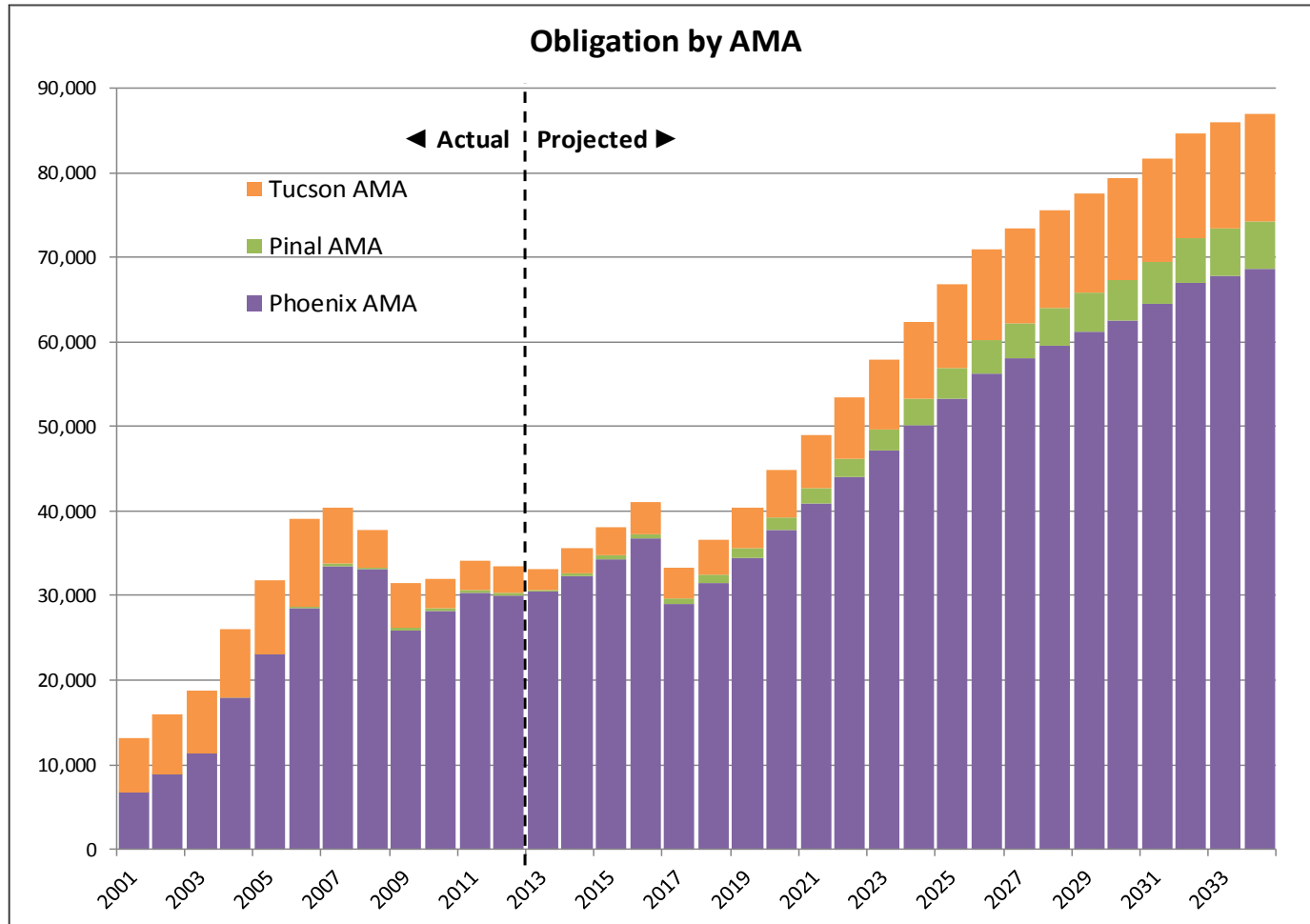


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Replenishment Obligation

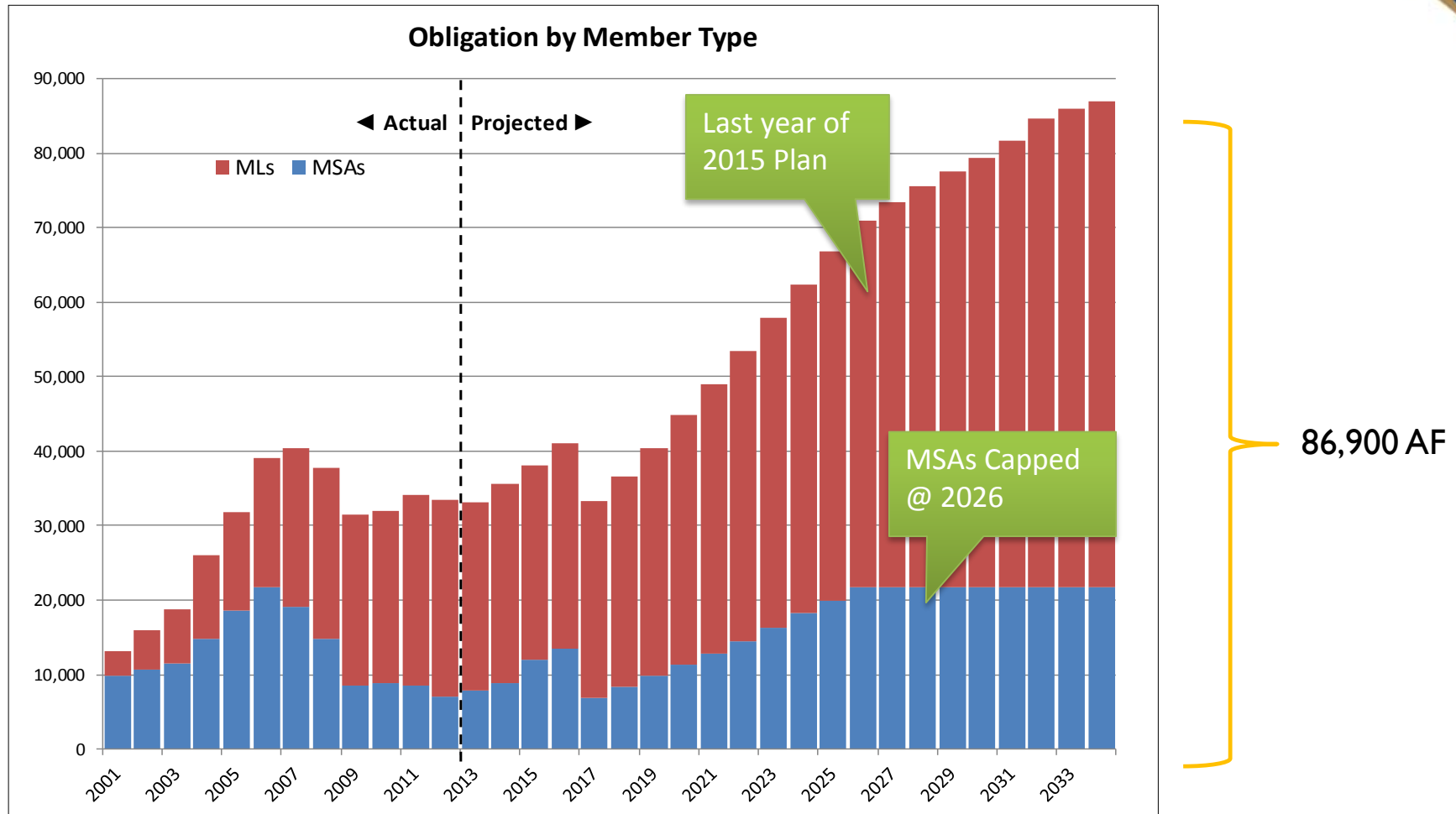


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100-year Obligation

Table 3.6: Estimated 100-Year Replenishment Obligation for Current and Future Members

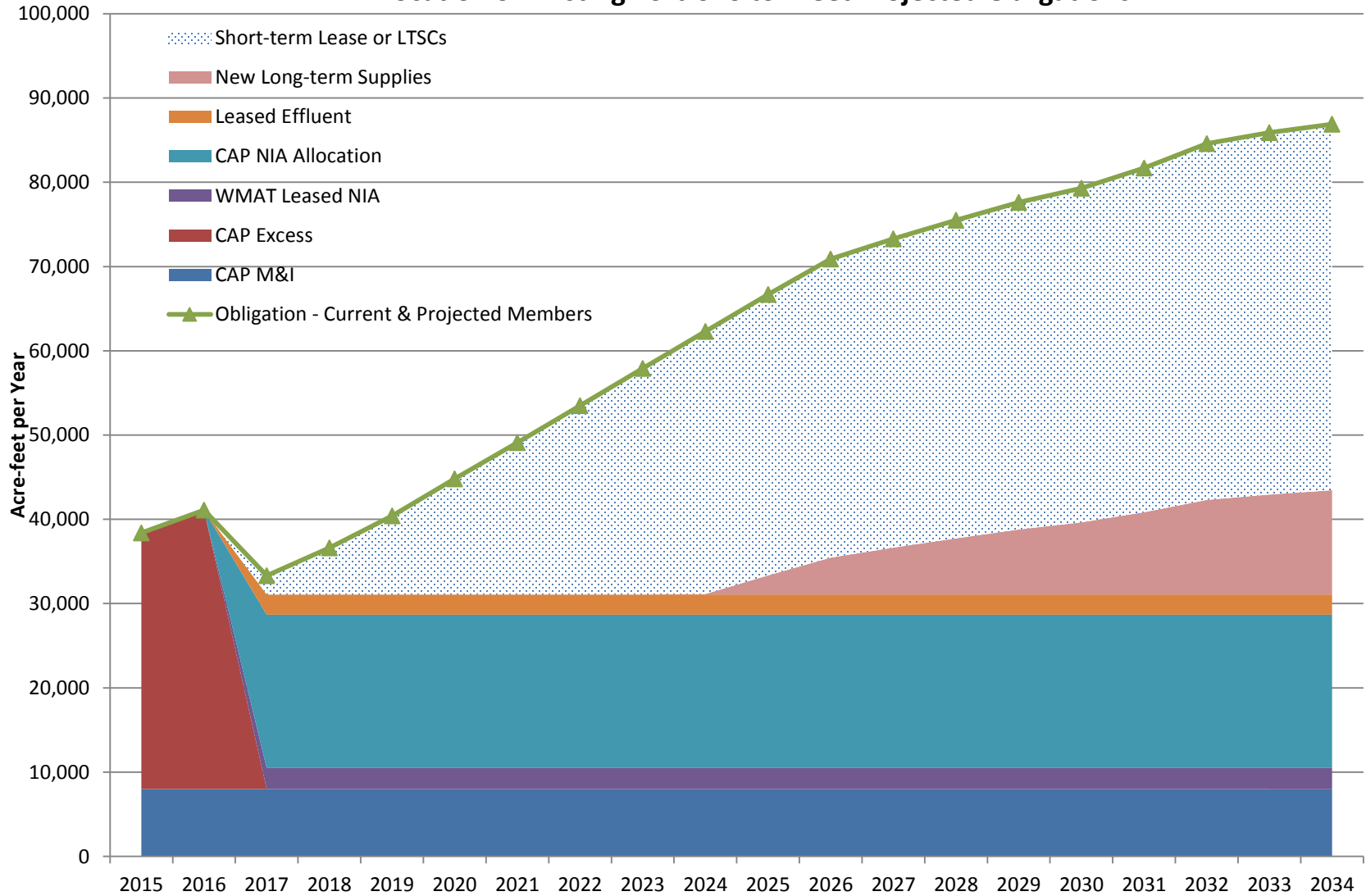
| Active Management Area | 2015 | 2020 | 2025 | 2030 | 2034 | | 2114 |
|------------------------|---------------|---------------|---------------|---------------|---------------|--|----------------|
| Phoenix AMA | 34,300 | 37,700 | 53,300 | 62,500 | 68,600 | | 84,200 |
| Pinal AMA | 400 | 1,500 | 3,500 | 4,900 | 5,600 | | 15,500 |
| Tucson AMA | 3,300 | 5,600 | 9,900 | 12,000 | 12,700 | | 13,300 |
| Total | 38,000 | 44,800 | 66,700 | 79,400 | 86,900 | | 113,000 |

+26 kAF from:

- Post-2034 ML Obligation
- 2015 Plan extra ML enrollment
- Inactivated MLs in Buckeye

Chapter 4: Water Supplies

Allocation of Existing Portfolio to Meet Projected Obligations



Supplies Planned for Use: 2015-2034

Current CAGRD Portfolio

| Supply Class | Annual Volume (AF/YR, 100 years) | Year Available | Term |
|----------------------|-------------------------------------|-------------------|----------------|
| CAP M&I | 7,996 | 2011 | Permanent |
| CAP Tribal (WMAT) | 2,500 | 2016 | 100 year lease |
| CAP NIA | 18,185 | 2016 | Permanent |
| Long-term Credits | 5,453 | 2014-2114 | 100 year |
| Effluent | 2,400 | 2017 | 100 year lease |
| Total | 36,534 | | |

Summary of Available Water Supplies: 2015 – 2034 and 2035 – 2114

| Supply Category | Supply Location | Total Current Supply (AF/yr, 100 yrs) | Available Water Supplies 2015 - 2034 | | Available Water Supplies 2035 - 2114 | |
|---------------------------|---|---------------------------------------|--------------------------------------|-----------------------|--------------------------------------|-----------------------|
| | | | Low (AF/yr, 100 yrs) | High (AF/yr, 100 yrs) | Low (AF/yr, 100 yrs) | High (AF/yr, 100 yrs) |
| Long-Term Storage Credits | Phoenix AMA, Pinal AMA, Tucson AMA, Harquahala INA | 88,900 | 11,000 | 22,000 | 11,000 | 22,000 |
| Effluent | Phoenix AMA, Pinal AMA, Tucson AMA | 407,600 | 59,600 | 119,200 | 76,100 | 152,300 |
| Central Arizona Project | All Contracts, Subcontracts, and Unallocated Supplies | 1,415,000 | 279,700 | 559,300 | 207,700 | 415,500 |
| Colorado River | Arizona Entitlements Excluding CAP Supplies | 1,143,700 | 109,800 | 219,700 | 109,800 | 219,700 |
| Imported Groundwater | Harquahala & Butler Valleys | 209,000 | 0 | 0 | 101,550 | 203,100 |
| Arizona Desalination | Yuma-area, Phoenix AMA | 40,000 | 0 | 0 | 14,000 | 40,000 |
| Total | | 3,364,200 | 460,100 | 920,200 | 538,200 | 1,088,600 |

Chapter 5: Replenishment Reserve

Replenishment Reserve

- **A supply of long-term storage credits that the CAGRD must establish and maintain within each AMA.**
- **Primary purposes are:**
 - 1. To provide a back-up supply of credits to ensure the ability to meet replenishment obligations.**
 - 2. To avoid rate shock from short-term increases in the cost of securing replenishment water.**
- **Reserve credits may be used to meet replenishment obligations after January 1, 2030, or earlier with permission from the ADWR Director.**

Replenishment Reserve: ARS §48-3772

- **Requires calculation of a Replenishment Reserve Target for each AMA to be included in the Plan.**
- **Reserve Targets are based on volumes and availability of water supplies identified in the Plan.**
- **Generally, the calculation is as follows:**

$$\text{Reserve Target} = (\text{Obligation} - \text{Supplies}) \times .20$$

“Obligation” is the projected 100-year replenishment obligation for the AMA

“Supplies” is the volume of planned water supplies times the number of years of availability

Reserve Credits: Accrued and Dedicated

- **Replenishment Reserve Account = \approx 186,000 ac-ft**
- **The Board has dedicated long-term storage credits held by CAWCD for exclusive use by CAGRD to meet its legal requirements to establish and maintain the CAGRD Replenishment Reserve account.**
 - **Dedication of these credits to CAGRD lessens current and future competition for water supplies.**
 - **CAGRD must reimburse CAWCD as these credits, over time, are moved to the Replenishment Reserve account.**
- **Dedicated CAWCD credits = \approx 624,000 ac-ft**

Available Replenishment Reserve Credits

| AMA | Accrued LTSCs (AF) | Dedicated LTSCs (AF) | Balance (AF) |
|----------------|-----------------------|-------------------------|-----------------|
| Phoenix AMA | 149,622 | 302,832 | 452,454 |
| Pinal AMA | 3,529 | 318,695 | 322,224 |
| Tucson AMA | 32,491 | 2,327 | 34,818 |
| Total | 185,642 | 623,854 | 809,496 |

AMA Replenishment Reserve Targets and Available Long-Term Storage Credits

| | Target (AF) | Available Credits (AF) | Balance (AF) |
|----------------|----------------|---------------------------|-----------------|
| Phoenix AMA | 603,866 | 452,454 | (151,412) |
| Pinal AMA | 48,036 | 322,224 | 274,188 |
| Tucson AMA | 112,600 | 34,818 | (77,782) |
| Total | 764,472 | 797,889 | 44,994 |

Chapter 6: Replenishment Capacity

Storage Capacity Available to CAGR

➤ CAP Storage Facilities

- Available capacity at CAP storage facilities assumed each of CAP's six direct recharge projects would continue to be permitted at present day capacities for the duration of the Plan of Operation
- Analysis assumes that Superstition Mountain Recharge Project Phase 2 is constructed by 2020
- Priority for CAGR storage would be in accordance with the May 2013 CAWCD Board policy governing capacity at CAP's direct recharge projects

➤ Non-CAP Storage Facilities

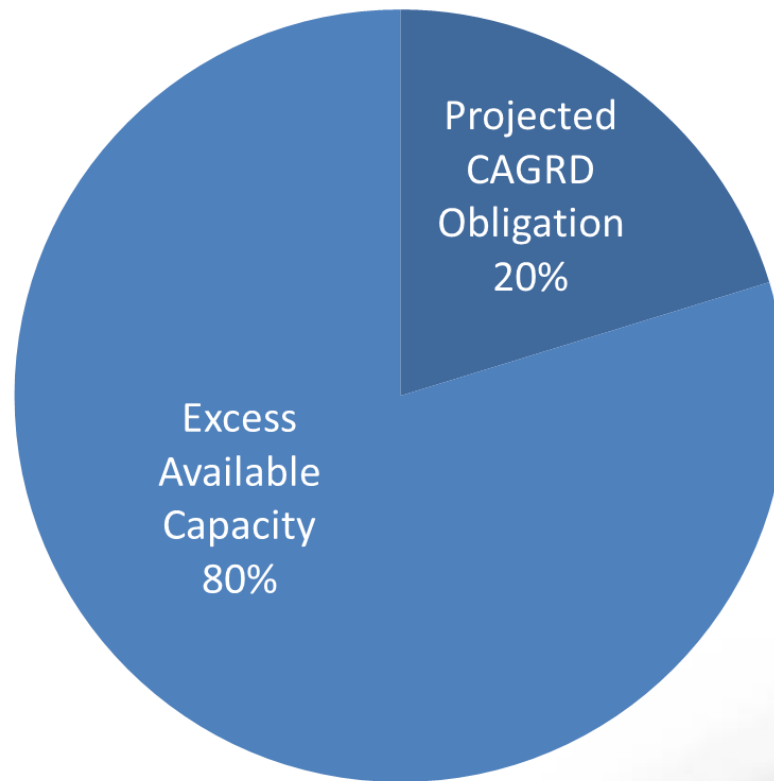
- Available capacity at facilities not owned by CAP were identified by consultation with facility owners

TABLE 6.1

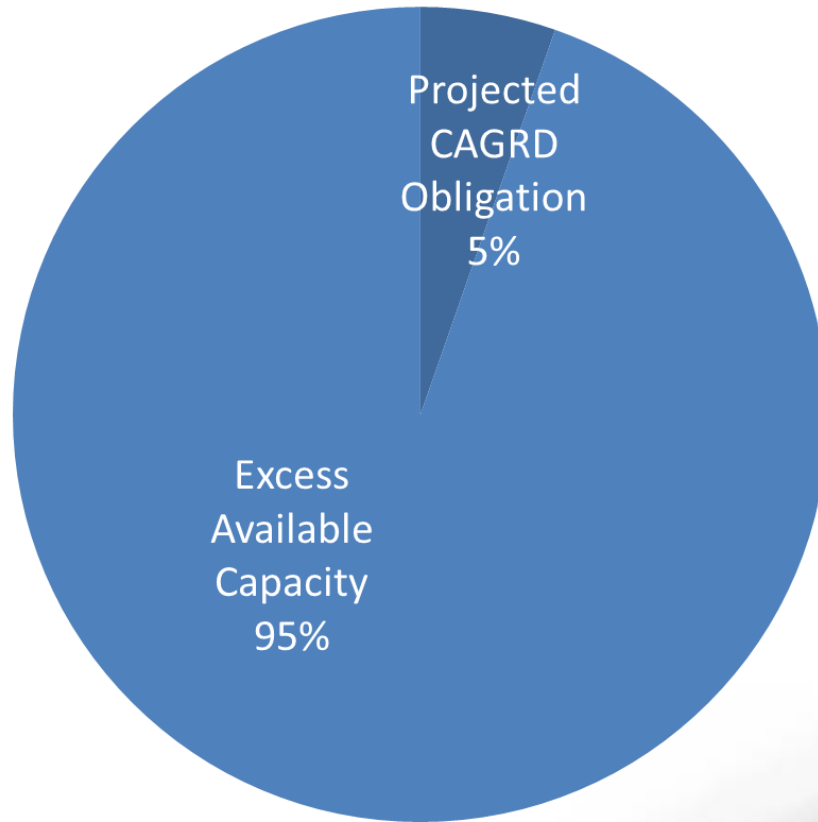
**Summary of Storage Capacity Available² to CAGRD (AF)
Combined USF and GSF**

| Year | 2015 | 2020 | 2025 | 2030 | 2034 |
|---|-------------|-------------|-------------|-------------|-------------|
| PHOENIX AMA | | | | | |
| Capacity Available | 269,600 | 301,100 | 316,100 | 316,100 | 316,100 |
| CAGRD Obligation | 34,300 | 37,700 | 53,300 | 62,500 | 68,600 |
| Excess Capacity | 235,300 | 263,400 | 262,800 | 253,600 | 247,500 |
| Pinal AMA | | | | | |
| Capacity Available | 97,700 | 97,700 | 97,700 | 97,700 | 97,700 |
| CAGRD Obligation | 800 | 1,500 | 3,500 | 4,900 | 5,600 |
| Excess Capacity | 96,900 | 96,200 | 94,200 | 92,800 | 92,100 |
| Tucson AMA | | | | | |
| Capacity Available | 50,222 | 50,222 | 50,222 | 50,222 | 50,222 |
| CAGRD Obligation | 3,300 | 5,600 | 9,900 | 12,000 | 12,700 |
| Excess Capacity | 46,922 | 44,622 | 40,322 | 38,222 | 37,522 |
| ² Volumes do not include capacity at projects for effluent supplies. | | | | | |

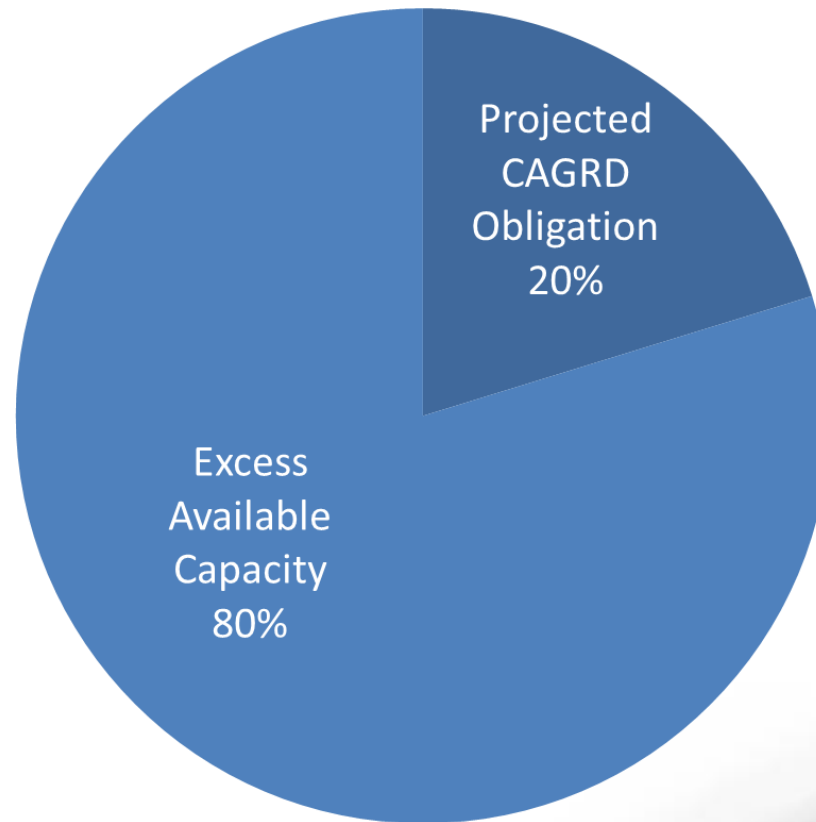
**CAGRD Recharge Capacity Profile in the Phoenix
AMA
(USF and GSF)
Projected 2034 Obligation**



**CAGRD Recharge Capacity Profile in the Pinal AMA
(USF and GSF)
Projected 2034 Obligation**



**CAGRD Recharge Capacity Profile in the Tucson AMA
(USF and GSF)
Projected 2034 Obligation**



Chapter 7: Financial Capability

Financial Capacity

- **The current Plan of Operation concluded that CAGRD had sufficient financial capacity to meet its obligations**
- **Since then:**
 - CAGRD has successfully continued to meet its annual obligations
 - CAGRD's financial flexibility has been enhanced to include annual membership dues and bonding authority
 - The long-term projection for replenishment obligation is significantly lower
 - CAGRD has pursued a successful water acquisition program and “caught up” to the current replenishment obligation and has \$40 million in the Water Rights and Infrastructure account
- **The CAWCD Board has a great deal of financial resources and flexibility to raise the necessary funds**
- **CAGRD continues to have the financial capability to meet its obligations**

Next Steps

- **April 8, 2015: Close of Public Comment Period**
 - **Six comment letters received**
- **May 15, 2015: CAGRD Response to Comments Due to ADWR**
- **August 6, 2015: Last Day for ADWR Determination of Consistency with AMA Management Goals**

Questions?